THE SINC TIMES

MAY
JUNE
JULY 1988

A PUBLICATION OF THE NET TS USERS GROUP

EDITORIAL BY STEVE BERG

HERE WE ARE WITH ANOTHER ISSUE OF THE SINC TIMES . YOU WILL NOTICE THAT THIS ISSUE IS FAT . THE SUBMISSIONS HAVE STARTED COMING IN AT A FASTER PACE , ALLOWING US TO SEND OUT A CATCH UP ISSUE TO GET THE SINC TIMES UP TO DATE . WE HOPE YOU ENJOY THIS SINC TIMES . I THINK WE HAVE SOMETHING FOR EVERYONE IN THIS ISSUE.
THERE ARE MANY T/S COMPUTER FESTS GOING ON . WE WISH THAT EVERYONE WOULD AVAIL THEMSELVES TO ONE OF THESE AND HELP KEEP THE SPIRIT OF T/S COMPUTING ALIVE AND WELL.
ATTACHED TO THIS ISSUE YOU WILL FIND A FLYER FOR UPDATE MAGAZINE WITH A QUESTIONAIRE . WHY NOT FILL IT IT OUT AND SEND IT IN . IT CAN ONLY HELP FURTHER OUR COLLECTIVE INTERESTS IN TS COMPUTING .
IF YOU'VE BEEN KEEPING UP WITH WHATS HAPPENING YOU KNOW THAT MORE AND MORE NEW AND UPDATED PRODUCTS ARE BECOMING AVAILABLE FOR THE T/S USER.
NEXT ISSUE WE WILL TRY TO GIVE YOU SOME INSIGHT INTO THESE ITEZMS .
IT'S TIME TO GIVE UP THE SOAPBOX AND GET TO THE GOOD STUFF.

SEND COMMENTS OR QUESTIONS TO STEVE BERG-EDITOR
THE SINC TIMES
6634 ORIOLE AVE
JACKSONVILLE, FLA 32216

INDEX

EDITORIAL AND INDEX 1
A TOUR OF THE BUS DEPOT 2+3
QL PRINTER CODES 3
ELECTRIC RATE CALCULATOR 4
BUSINESS MEETING MINUTES 5
LIGHT BAR MENUS FOR THE ZX/TS 6+7
FIRST IMPRESSIONS ON THE QL 8
ENGINEERING APPLICATIONS 9+10+11+12+13
MEMBERSHIP INFO 13

A TOUR OF THE BUS DEPOT

Jacksonville is known for the many BBS's that operate here. At last count, there was over 70 systems up and running. Most of them are 24 hr. boards. As for us Timex & Sinclair users, one is most prevailant; the Bus Depot. The SYStem OPerator, Felix Pendas, has kindly contributed some disk space to us for the past year or so. This T\S sub-board has enhanced my skills as a computer enthusiast, as well as introduced me to a few new friends. I would like to share a tour of the Bus Depot in hopes of reaching those people that just might be interested if they only knew more about it.

The Bus Depot exists under command of OPUS-CBCS v1.03a. Which is in the family of FidoNet BBS's. There are literally hundreds of 'nodes' (actual BBS's) that on a daily basis, exchange 'packets' of information. The most amazing part of this is, for about what you pay for a postage stamp, you can send 'electronic mail' to a friend across the country OVERNIGHT! (Eat your heart out UPS!) This service is not limited to the continental USA, foriegn countries are also accessable through FidoMail. Of course, the cost of the transfer goes up when you start talking about overseas transfers. There is even a facility to attach a file (program) to your FidoMail and the recipient will recieve it along with the message. This could be an excellent way for us T\S users to keep in touch without those $150.00 phone bills!

Let's get down to business here. With your favorite software loaded and the settings as follows; Conversion: none, Duplex: full, Word length: 8, Stop Bits: 1, Parity: none, you should be ready to connect. You may want to use the auto dial feature if available and call (904) 262-6761. Don't be discouraged if you don't get through on the very first try. This is a very busy system with many users. I try to call on non-prime time hours (early morning or late night). If you have an auto repeat dial option this may be the time to use it. Upon connection, press enter once. The BBS should now take over displaying the inital opening displays. When prompted for your name, don't be afraid to use your real one. A common misconception is that your name might be turned over to some hungry FBI man just waiting to jump on some poor computer nut. This just is not so. Anyway, after registering you may be given some 'new user' text that should be read carefully. I believe most of all, the Sysops are trying to get across is to please use the system in a decent, responsible manner.

After all this hoo-ha of the inital logon, you will be presented with several selections:

(1) About the system
(2) Editorial
(3) Local BBS listing
(4) FCC Proposed Tax
(5) FCC continue
(6) Top ten uploaders
(7) Top ten callers
(8) The Bus Depot address
(0) Quit (exit to system)

At this point select 0 + ENTER. You then will be led to one more area. This usually contains a brief comment by the Sysop of current events. You can abort this by sending a CONTROL C (on MTERM, capshift 7 + c and on Zterm, capshift 1 + c). Once through this you are into the heart of the system and looking at the main menu:

```
M)essage section  F)ile section  G)oodbye (log off)
A)ns Questions  B)ulliten  Y)ell at sysop
C)hange setup  U)ser list  E)xtra info  V)ersion
```

For now, press M + ENTER. This will put you into the last message base you were in or if you're a new user it'll pick one for you. Once there, type A + ENTER to list all the message areas. Currently, there are 13 available areas to choose from. You may want to pick 7 as this is our T\S section. Take your time and browse through the messages. You may want to type one in yourself, stating you are a new user. Our message base has been very active lately. After spending some time there you might want to check out our files section. This includes many downloads for the 2068 as well as some for the 1000. Perry Wilson of our users group has spent much time uploading RLE Graphic files. Take your time and explore the power of this system. Let the Sysop know that you value his effort to keep some disk space set aside for us T\S'ers. Above all, CONTRIBUTE TO THE SYSTEM with your messages and uploads! Have fun..... Tom Phillips

---

THIS CAME FROM FRANK TOEMAY(WHERE ARE YOU?) ON ONE OF HIS FREEWARE MDVS FOR THE QL. IF YOU HAVE AN EPSON COMPATIBLE OR EVEN BETTER A SINCLAIR PRINTER OR ONE OF IT'S LOOK ALIKES YOU WILL LIKE THIS PROCEDURE. STUDY IT OUT TO LEARN TO USE IT AND REMEMBER ALL OF THE CODES ARE PROCEDURES AND SHOULD BE USED AS SUCH.

SUBMITTED BY STEVE BERG.

```
32505 :
32510 DEFine PROCedure Set_Codes
32515 Esc$=CHR$(27):Reset$=Esc$&'@':Retn$=CHR$(13):LF$=CHR$(10):PF$=CHR$(12)
32520 VT$=CHR$(11):LFn$=Esc$&'J':REMark You Must ADD CHR$(Var n)
32525 ELon$=Esc$&'M':ELoff$=Esc$&'P':CONon$=CHR$(15):CONoff$=CHR$(18)
32530 LQon$=Esc$&'x1':LQoff$=Esc$&'x0':PROPon$=Esc$&'p1':PROPoff$=Esc$&'p0'
32535 SUPERon$=Esc$&'S0':SUBon$=Esc$&'S1':SCRIPToff$=Esc$&'T'
32540 ITALon$=Esc$&'4':ITALoff$=Esc$&'5':MULTIon$=Esc$&'!':MULTIoff$=Reset$
32545 BOLDon$=Esc$&'E':BOLDoff$=Esc$&'F':DSon$=Esc$&'G':DSoff$=Esc$&'H'
32550 DWon$=Esc$&'W1':DWoff$=Esc$&'W0':ULon$=Esc$&CHR$(1):ULoff$=Esc$&CHR$(0)
32555 BKSPC$=CHR$(8):CLRBUF$=CHR$(24):PAPEROUTon$=Esc$&'9':PAPEROUToff$=Esc$&'8'
32560 CGR$=Esc$&'A'&CHR$(8):SDGR$=Esc$&'K'&CHR$(0)&CHR$(1):GRoff$=Esc$&'2'
32565 DDGR$=Esc$&'L'&CHR$(0)&CHR$(1):DDSG$=Esc$&'Y'&CHR$(0)&CHR$(1)
32570 REMark QDGR$=Esc$&'Z'&CHR$(0)&CHR$(1):LFPn$=Esc$&'3'&CHR$(n)
32575 END DEFine Set_Codes
32585 :
32590 DEFine PROCedure Test_Run
32592       OPEN#3,ser:Set_Codes
32595       PRINT#3;BOLDon$;DSon$;ITALon$;:LIST#3,TO 32700:PRINT#3;CHR$(12);Res
e
32600 END DEFine Test_Run
32602 :
32605 DEFine PROCedure Save_Codes
32610       DELETE mdv1_Printer_Codes
32615         SAVE mdv1_Printer_Codes,32500 TO 32666
32620 END DEFine Save_Codes
```

```
 1 REM MODIFIED TO REFLECT JEA RATES AND TRANSLATED FROM
 2 REM BASICA TO SINCLAIR BASIC, JULY 1988, BY PERRY WILSON.
 3 REM ORIGINAL PROGRAM IN "BASIC PROGRAMS FOR THE HOME"
 4 REM                BY CHARLES STERNBERG
 5 PRINT
10 REM JEA ELECTRIC ANALYSIS PROGRAM
20 LET M=100
30 READ C,B
40 READ D,S
50 PRINT "INITIAL READING WAS ";S;" ON DAY ";D
60 PRINT "COST PER UNIT IS ";C
70 PRINT "MINIMUM BILL IS $5.50, AND IS ADDED TO ELECT. CHG."
75 PRINT "TAX IS 10% OF DIFFERENCE BETWEEN ELECTRIC CHARGE"
77 PRINT "AND FUEL CHARGE, AND IS INCLUDED IN THE TOTAL."
78 PRINT "ENTER EACH DAY (DATE) AND READING AS DATA,";: REM  (examples are shown on lines 510
520. Delete or change these lines to represent your own values.)"
79 PRINT "STARTING AT LINE 510."
80 PRINT
90 PRINT "   DATE";TAB 20;"kWh";TAB 30;"TOT. ELECT."
100 PRINT "   READ";TAB 10;"READING";TAB 20;"USED";TAB 32;"TO DATE"
110 PRINT
120 LET T2=S
130 LET D2=D
140 FOR I=1 TO M
150 LET N=1
160 READ D
170 IF D=0 THEN GO TO 320
180 IF D<D2 THEN GO TO 200
190 LET N=D-D2
200 LET D2=D
210 READ R
220 LET T0=R-T2
230 LET T1=T0*C
240 PRINT TAB 4;D;TAB 10;R;TAB 20;T0;TAB 32;T1;
250 IF N=1 THEN GO TO 270
260 PRINT "  ***(";N;" DAYS)";
270 LET T2=R
290 LET N1=D-1
300 PRINT
310 NEXT I
320 LET T4=R-S
330 PRINT  TAB 20;"----";TAB 32;"-------"
335 LET T3=T4*C
350 LET F=.03424
360 LET A=T4*F
370 LET X=T3-A
380 LET Y=.1*X
385 LET T3=T3+B+(Y+(.1*B))
390 PRINT "  TOTALS";TAB 20;T4;TAB 32;T3
400 PRINT "FOR ";N1;"  DAYS"
410 PRINT "AVERAGE DAILY USE WAS: ";T4/N1; " kWh"
420 PRINT "AVERAGE DAILY COST WAS: ";T3/N1
430 STOP
500 DATA .0592,5.5
510 DATA 1,7287
520 DATA 19,8423
650 DATA 0
```

NORTH EAST FLORIDA T/S USERS GROUP
BUSINESS MEETING MINUTES

Date: 06/11/88
Members present: 9

Subject: Temporary elections.

Offically voted Norm Petrik as Book Librarian; Marl (Ham) Hammette as P.D. Software Librarian; Tom Phillips as Secretary & Newsletter Exchange.

General elections to be held 08/13/88

Subject: Treasurers report.

Membership dues must be paid by mail as our current meeting place does not allow any exchange of money in their building. Dues have been increased to $15.00 / yr. upon voting of the issue. Dues are due on 07/01/88.

Subject: Newsletter.

The need for articles to go into our newsletter was addressed. Members are urged to contribute in any way they can. Remember folks, this is OUR LIFELINE.....

A decision was made to limit the newsletter to 5 sheets as to keep the mailing costs minimal.

Voted to install notice in next newsletter regarding the issue of local mailouts of the newsletter. "No local mailouts unless arrangements have been made in advance with N/L Exchange Rep. (Tom Phillips- 739-2580).

Subject: QL USA Newsletter

A discussion and vote was made regarding the affiliation of the N.E.F.T/S.U.G. and the QL USA Newsletter. A vote revealed that the two N/Ls should not share the same Treasury.

Subject: General.

A decision has been made to return to our previous policy of making the 1st meeting of the month a business meeting. The actual business meeting is to be limited to 1 hour if possible. This will allow some free 'play time'.

A suggestion was made to ask members to offer some type of presentation for the club on the 2nd meeting of the month. We have a lot of good talent out there..... let's share it!

LIGHT-BAR MENUS ON THE ZX81/TS1000

Most programmers don't give menus much thought. After all, menus are just a way to get the user where he wants to go, aren't they? Definitely not!

Years of system design, analysis, and programming have taught me that good, well designed, eye appealing, user-friendly menus are one of the single most important contributions to developing a system which will please the users. Remember, if the system pleases the users then the system will be a success. No matter how efficiently a system operates, if the users do not like to use it, it will not be utilized or appreciated.

One of the simplest and most eye-appealing menu styles is the light-bar menu. A light-bar menu uses a moving bar to highlight a menu selection. The bar is controlled by the cursor keys. When the user has highlighted the desired selection, a carriage return is pressed and processing shifts to the selected option.

This menu style is currently very popular for use on mainframe and mini-computer systems. Until very recently, the light-bar menu was not often seen on microcomputer systems. But this has changed recently. As a result of faster processing speeds, todays micros are often equipped with the graphics capabilities to handle such tasks. As an example, I recently designed a system to computerize the personnel department of a large aerospace firm. The system runs on a network of IBM PCs using the Dbase III+ DBMS. By using compiled code, I was able to achieve an execution speed which enabled me to specify light-bar menus. These "snazzy" menus were a definite plus as far as the users were concerned, and made a big contribution to the overall success of the project.

Because of its inverse graphics capabilities, the ZX81 can be made to simulate the light-bar menu style very handily. Here is a simple menu which will illustrate the concept. Enter the program into your ZX81, and then save it to tape (for use in future programming ventures). Note that in lines 190-220 the B$ values are the same as the A$ values but in graphics (inverse) mode. Now run the program.

The menu will initialize with the first selection (GAME 1) "highlighted". Use the unshifted 6 and 7 keys to move the "light bar" (dark-bar?) through the selections. Keying newline will cause the program to execute the highlighted selection. Notice the wrap-around feature at the top and bottom of the menu (handled by the "outofbounds" sections).

By replacing the "HERE AT GAME #" routines with actual short games, you can create an entertaining program for the kids (line # 430 could be changed to 1000*X to give more room for coding). By using a 64k rampack, you could replace them with a series of useful home accounting routines, or maybe a series of more complicated games (for the bigger "kids" around the house). Additional selections can be added by dimensioning larger arrays and changing the appropriate PRINT AT statements.

Comments and questions are welcomed. Send them to:

Edward Snow
2136 Churchill Downs Circle
Orlando, Florida 32825

```
 10 REM *** LIGHT-BAR MENU ***
 20 REM WRITTEN 6/7/88 BY
 30 REM  ED SNOW
 35 REM
 40 REM *INITIALIZE VARIABLES*
 50 LET X=5
 60 LET Y=1
 70 LET DISPLAY=230
 80 LET AGAIN=400
 90 LET DOWN=480
100 LET UP=550
110 LET OUTOFBOUNDSUP=680
120 LET OUTOFBOUNDSDOWN=620
130 DIM A$(4,8)
140 DIM B$(4,8)
150 LET A$(1)=" GAME 1  "
160 LET A$(2)=" GAME 2  "
170 LET A$(3)=" GAME 3  "
180 LET A$(4)="  EXIT   "
190 LET B$(1)=" GAME 1  "
200 LET B$(2)=" GAME 2  "
210 LET B$(3)=" GAME 3  "
220 LET B$(4)="  EXIT   "
225 REM
230 REM ***** DISPLAY *****
240 CLS
250 FAST
260 LET X=5
270 LET Y=1
280 PRINT AT 1,6;"GAMES-TAPE VS
 1.1"
290 PRINT AT 3,6;"**********
*"
300 PRINT AT 4,8;"*
*"
310 PRINT AT 5,8;"*";AT 5,11;B$
(1);AT 5,21;"*"
320 PRINT AT 6,8;"*";AT 6,11;A$
(2);AT 6,21;"*"
330 PRINT AT 7,8;"*";AT 7,11;A$
(3);AT 7,21;"*"
340 PRINT AT 8,8;"*";AT 8,11;A$
(4);AT 8,21;"*"
350 PRINT AT 9,8;"*
*"
360 PRINT AT 10,8;"**********
**"
370 PRINT AT 12,6;"USE CURSOR K
EYS TO"
380 PRINT AT 13,7;"HIGHLIGHT CH
OICE"
390 SLOW
395 REM
400 REM ***** AGAIN *****
410 IF INKEY$="" THEN GOTO AGAI
N
420 REM BAR MOVEMENT ROUTINE
430 IF INKEY$=CHR$ (118) THEN G
OTO (200*X)
440 IF INKEY$=CHR$ (34) THEN GO
TO DOWN
450 IF INKEY$=CHR$ (35) THEN GO
TO UP
460 GOTO AGAIN
470 REM
480 REM **** DOWN ****
490 LET X=X+1
500 LET Y=Y+1
510 IF X=9 THEN GOTO OUTOFBOUND
SDOWN
520 PRINT AT X,11;B$(Y)
530 PRINT AT X-1,11;A$(Y-1)
540 GOTO AGAIN
545 REM
550 REM ***** UP *****
560 LET X=X-1
570 LET Y=Y-1
580 IF X=4 THEN GOTO OUTOFBOUND
SUP
590 PRINT AT X,11;B$(Y)
600 PRINT AT X+1,11;A$(Y+1)
610 GOTO AGAIN
615 REM
620 REM *** OUTOFBOUNDSDOWN ***
630 PRINT AT 8,11;A$(4)
640 PRINT AT 5,11;B$(1)
650 LET X=5
660 LET Y=1
670 GOTO AGAIN
675 REM
680 REM *** OUTOFBOUNDSUP ***
690 PRINT AT 5,11;A$(1)
700 PRINT AT 8,11;B$(4)
710 LET X=8
720 LET Y=4
730 GOTO AGAIN
735 REM
1000 REM **** GAME 1 HERE ***
1010 CLS
1020 PRINT AT 10,9;"HERE AT GAME
 1"
1030 PAUSE 120
1040 GOTO DISPLAY
1045 REM
1200 REM **** GAME 2 HERE ****
1210 CLS
1220 PRINT AT 10,9;"HERE AT GAME
 2"
1230 PAUSE 120
1240 GOTO DISPLAY
1245 REM
1400 REM **** GAME 3 HERE ****
1410 CLS
1420 PRINT AT 10,9;"HERE AT GAME
 3"
1430 PAUSE 120
1440 GOTO DISPLAY
1445 REM
1600 REM **** EXIT ROUTINE ****
1610 STOP
```

GAMES-TAPE VS. 1.1

```
**********
*        *
*  GAME 1*
*  GAME 2*
*  GAME 3*
*   EXIT *
*        *
**********
```

USE CURSOR KEYS TO
HIGHLIGHT CHOICE

FIRST IMPRESSIONS (THE CONTINUING SAGA OF A QL USER)

by Steve Berg

AS PROMISED IN THE LAST ISSUE OF THIS NEWSLETTER I WILL START WITH HOOK UP DIAGRAMS FOR THE SERIAL PORTS ON THE QL. MOST LIKELY THE MOST ADDED THINGS HUNG ON A QL ARE EITHER A PRINTER OR A MODEM. IN THIS MONTHS COLUMN WE WILL BUILD A SERIAL CABLE TO FIT A QL SERIAL PORT TO A STANDARD MODEM. BY STANDARD I MEAN HAYES COMPATIBLE . THIS COULD INCLUDE AVATEX, PACKARD BELL , CAPETRONIC AND MANY OTHERS. I AM USING A CAPETRONIC 1200 BAUD . THE CABLE BELOW ALLOWS ME TO FULLY USE ALL THE AVAILABLE COMMANDS INCLUDING THOSE WHICH ALLOW ME TO TALK TO THE MODEM DIRECTLY WITHOUT BEING TIED TO A PHONE LINE. IN THIS MODE THE MODEM WILL WRITE TO THE SCREEN AND DISPLAY ITS BUILT IN SOFTWARE. THIS CABLE SHOULD WORK WITH ANY 1200 BAUD STANDARD MODEM AND ANY OF THE POPULAR MODEM SOFTWARE PACKAGES.

QL 9 PIN CONN		DB 25 CONN.
PIN 1 GROUND	TO	PIN 7 SIGNAL GROUND
PIN 2 TX	TO	PIN 2 TX
PIN 3 RX	TO	PIN 3 RX
PIN 9	TO	PIN 20 DTR
PIN 9	TO	PIN 4

THE ABOVE SET UP WORKS GREAT FOR ME . YOU CAN GET THE PARTS AT RADIO SHACK VERY INEXPENSIVELY . MAKE SURE YOU GET THE 9 PIN AND 25 PIN CONNECTORS THAT HAVE THE PINS NOT THE HOLES .RADIO SHACK CALLS THEM (MOST OF THE TIME ANYWAY) MALE CONNECTORS. YOU CAN USE 4 OR 5 CONDUCTOR WIRE . NOTE IF YOU USE 4 CONDUCTOR YOU WILL NEED TO PUT A JUMPER FROM PIN 20 TO PIN 4 OF THE DB25 CONNECTOR. ALSO PAY THE EXTRA AND GET SHIELDED HOODS FOR YOUR CONNECTORS . THEY LOOK NICE AND KEEP INTERFERENCE LEVELS DOWN. WITH THIS CABLE YOU WILL NEED TO USE SER2 . YOU COULD SWITCH THE WIRES ON PINS 2 AND 3 ON THE QL END AND USE SER1 IF YOU NEEDED TO , BUT YOU WILL FIND MOST SOFTWARE LOOKS AT SER2 FOR MODEM COMMUNICATIONS. IF YOU ARE GOING TO RUN AT 300 BAUD YOU MUST PURCHASE A MODAPTER FROM YOUR FAVORITE DEALER . THE QL IS NOT SET TO RUN AT 300 BAUD WITHOUT THIS EXTRA HARDWARE. NEITHER I OR THE NEF TS USERS GROUP CAN TAKE RESPONDSIBILITY FOR THE RESULTS OF THIS LITTLE PROJECT. I AM USING IT AND IT WORKS WELL BUT THEN AGAIN I DON'T KNOW HOW WELL YOU SOLDER. WATCH FOR SHORTED WIRES ON THE CONNECTORS AND PROPER CONNECTIONS ON BOTH ENDS OF THE CABLE. GOOD LUCK AND HAPPY MODEMING. COMMENTS AND QUESTIONS CAN BE SENT TO

STEVE BERG
6634 ORIOLE AVE
JACKSONVILLE, FL 32216

By D. H. Berry

TUBEWALL THICKNESS

This is a program to calculate required tubing wall thickness. It is a modified version of a program that appeared in Heating, Piping, and Air Conditioning magazine. It was developed on the TS 2068, but is written so that it may easily be typed into a TS1000, or TS1500 (16K Ram required).

When operating pressures are low, Barlow's formula is used. It is: T=PD/2S

When the wall thickness is 0.1 X D or greater, Clavarino's formula is used.
S = P*((1.3*D*D + 0.4*d*d)/(D*D - d*d))

Where: T = required wall thickness, in.
P = internal pressure, psig
D = tube outside diameter (OD), in.
d = tube inside diameter (ID), in.
S = stress, psi

The program has a menu to calculate T, P, or S using ID or OD.

Hope you can use it. Let me know if you have questions and/or comments.

```
10 REM TUBEWALL
20 REM by D.H. Berry, P.E.
30 REM 4-18-88
50 PRINT
60 PRINT
70 PRINT "### TUBE WALL THICKNESS ###"
80 PRINT
90 PRINT
100 PRINT "Display Program"
110 PRINT "Description? (y/n)"
120 PRINT
130 INPUT a$
140 IF a$="y" THEN GO TO 180
150 IF a$="n" THEN GO TO 1600
160 CLS
170 GO TO 50
175 PRINT
180 CLS
190 PRINT
200 PRINT
210 PRINT "This program calculates required"
220 PRINT "wall thickness for tubing (or  pipe)."
230 PRINT
240 PRINT "When operating pressures are"
250 PRINT "low, the Barlow formula is used."
260 PRINT
270 PRINT "When the computed (or inputed)"
275 PRINT "wall thickness becomes"
277 PRINT "0.1 X OD or greater,"
280 PRINT "The Clavarino formula is used"
285 PRINT
320 PRINT "Input b to start"
330 INPUT b$
340 IF b$="b" THEN GO TO 1600
345 IF b$="B" THEN GO TO 1600
350 GO TO 180
360 LET k1=s/p
370 LET k3=(k1-1.3)/(k1+.4)
380 LET ID=SQR (OD*OD*k3)
390 RETURN
600 REM Input P
610 CLS
620 PRINT
630 PRINT
640 PRINT "Input Internal Pressure (psig)"
650 INPUT p
660 RETURN
670 REM input t
680 CLS
690 PRINT
700 PRINT
710 PRINT "Input Wall thickness (in.)"
720 INPUT t
```

```
730 RETURN
740 REM Input OD
750 CLS
760 PRINT
770 PRINT
780 PRINT "Input tube O.D. (in.)"
790 INPUT OD
800 RETURN
810 REM Input S
820 CLS
830 PRINT
840 PRINT
850 PRINT "Input Allowable Stress (psi)"
860 INPUT s
870 RETURN
880 REM Barlow Formula
890 LET t=(p*OD)/(2*s)
900 RETURN
910 LET p=(2*s*t)/OD
920 RETURN
950 LET s=(p*OD)/(2*t)
955 LET ID=OD-(2*t)
960 RETURN
980 REM  Clavarino Formula using O.D.
990 LET s=p*((1.3*OD*OD)+.4*ID*ID)/(OD*OD-ID*ID)
1000 RETURN
1010 LET k1=s/p
1020 LET k2=(k1+.4)/(k1-1.3)
1030 RETURN
1040 REM O.D.
1050 LET OD=(k2*ID*ID)^.5
1090 RETURN
1100 REM ID
1110 CLS
1120 PRINT
1130 PRINT
1140 PRINT "Input I.D. (in.)"
1150 INPUT ID
1160 RETURN
1170 REM Barlow Formula using I.D.
1180 LET T=(ID*p)/(2*(s-p))
1190 RETURN
1200 LET p=2*s*t/(ID+2*t)
1210 RETURN
1220 LET s=p*(ID+2*t)/(2*t)
1230 RETURN
1250 REM Clavarino Formula using O.D.
1260 LET t=(OD-ID)/2
1270 RETURN
1280 LET s=k1*p
1290 RETURN
1300 LET p=s/k1
1310 RETURN
1380 REM Printout
1390 PRINT "Int. pressure (psi) = ";p
1400 RETURN
1410 PRINT "Tube O.D. (in.)     = ";OD
1420 RETURN
1430 PRINT "Tube I.D. (in.)     = ";ID
1440 RETURN
1450 PRINT "Allow. stress (psi) = ";s
1460 RETURN
1470 PRINT "Tube Wall"
1475 PRINT "Thickness (in.)     = ";t
1480 RETURN
1490 PRINT "Barlow Formula used"
1500 RETURN
1510 PRINT "Clavarino Formula used"
1520 RETURN
1560 REM p as per Clavarino
1570 LET p=s/((1.3*OD*OD+.4*ID*ID)/(OD*OD-ID*ID))
1580 RETURN
1600 REM MENU
1610 CLS
1620 PRINT
1630 PRINT "*******************************"
1640>PRINT
1650 PRINT "       MENU"
1652 PRINT
1660 PRINT "KEY     COMPUTE"
1670 PRINT
1680 PRINT "1 --- Tube Wall t using O.D."
1690 PRINT
1700 PRINT "2 --- Tube Wall t using I.D."
1710 PRINT
1720 PRINT "3 --- Int. Pressure using O.D."
1730 PRINT
1740 PRINT "4 --- Int. Pressure using I.D."
1750 PRINT
1760 PRINT "5 --- Actual Stress using O.D."
1770 PRINT
1780 PRINT "6 --- Actual Stress using I.D."
1790 PRINT
1800 PRINT
1810 PRINT "INPUT CHOICE"
1840 INPUT c
1850 IF c=1 THEN GO TO 1950
1860 IF c=2 THEN GO TO 2490
1870 IF c=3 THEN GO TO 3140
1880 IF c=4 THEN GO TO 3710
1890 IF c=5 THEN GO TO 4180
1900 IF c=6 THEN GO TO 4690
1930 GO TO 1600
1950 REM Compute t using O.D.
1960 GO SUB 600
1970 GO SUB 750
1980 GO SUB 810
1990 GO SUB 880
2000 IF t>=0.1*OD THEN GO TO 2030
2010 IF t<0.1*OD THEN GO TO 2270
2030 GO SUB 360
2050 GO SUB 1250
2060 CLS
2070 PRINT
2080 PRINT
2100 PRINT "INPUT DATA"
2110 PRINT
2120 GO SUB 1390
2130 PRINT
2140 GO SUB 1410
2150 PRINT
2160 GO SUB 1450
```

```
2165 PRINT
2170 PRINT
2172 PRINT "*** RESULTS ***"
2175 PRINT
2180 GO SUB 1470
2190 PRINT
2200 GO SUB 1510
2210 PRINT
2220 PRINT
2230 GO TO 3080
2260 PRINT
2270 CLS
2280 PRINT
2290 PRINT "INPUT DATA"
2300 PRINT
2310 GO SUB 1390
2320 PRINT
2330 GO SUB 1410
2340 PRINT
2350 GO SUB 1450
2360 PRINT
2370 PRINT
2380 PRINT "*** RESULTS ***"
2390 PRINT
2400 GO SUB 1470
2410 PRINT
2420 GO SUB 1490
2430 PRINT
2440 GO TO 3080
2490 REM Compute t using I.D.
2500 GO SUB 1100
2510 GO SUB 600
2520 GO SUB 810
2530 GO SUB 1170
2540 LET OD=ID+2*t
2550 IF t>=0.1*OD THEN GO TO 2580
2560 IF t<0.1*OD THEN GO TO 2880
2580 REM t>=0.1*OD
2590 GO SUB 1010
2600 GO SUB 1040
2610 GO SUB 1250
2620 CLS
2630 PRINT
2640 PRINT "INPUT DATA"
2650 PRINT
2660 GO SUB 1430
2670 PRINT
2680 GO SUB 1390
2690 PRINT
2700 GO SUB 1450
2710 PRINT
2720 PRINT
2730 PRINT "*** RESULTS ***"
2760 PRINT
2770 GO SUB 1470
2780 PRINT
2790 PRINT
2800 GO SUB 1510
2810 PRINT
2820 PRINT
2830 GO TO 3080
2880 REM t<0.1*OD
2890 CLS
2900 PRINT
2910 PRINT "INPUT DATA"
2920 PRINT
2930 GO SUB 1430
2940 PRINT
2950 GO SUB 1390
2960 PRINT
2970 GO SUB 1450
2980 PRINT
2990 PRINT
3000 PRINT "*** RESULTS ***"
3010 PRINT
3020 GO SUB 1470
3030 PRINT
3080 REM Return to Menu
3090 PRINT "Input m for Menu"
3100 INPUT m$
3110 IF m$="m" THEN GO TO 1600
3120 IF m$<>"m" THEN GO TO 3080
3140 REM p using O.D.
 3170 GO SUB 740
 3180 PRINT
 3190 GO SUB 850
 3200 PRINT
 3210 GO SUB 670
 3220 PRINT
 3230 IF t>=0.1*OD THEN GO TO 3250
 3240 IF t<0.1*OD THEN GO TO 3490
 3250 CLS
 3260 PRINT
 3270 PRINT
 3280 PRINT "t exceeds 0.1*OD, "
 3290 PRINT "using Clavarino Formula"
 3300 LET z1=(1.3*OD*OD+.4*(OD-2*t))/(OD*OD-((OD-2*t)*(OD-2*t)))
 3310 LET p=s/z1
 3320 PRINT
 3330 PRINT "INPUT DATA"
 3340 PRINT
 3350 GO SUB 1410
 3360 PRINT
 3370 GO SUB 1450
 3380 PRINT
 3390 GO SUB 1470
 3400 PRINT
 3410 PRINT
 3420 PRINT "*** RESULTS ***"
 3430 PRINT
 3440 GO SUB 1390
 3450 PRINT
 3460 GO SUB 1510
 3470 GO TO 3080
 3490 REM t<0.1*OD
 3500 CLS
 3510 PRINT
 3520 PRINT "INPUT DATA"
 3530 PRINT
 3540 GO SUB 1410
 3560 PRINT
 3570 GO SUB 1450
 3580 PRINT
```

```
3590 GO SUB 1470
3600 PRINT
3610 PRINT
3620 PRINT
3630 PRINT "*** RESULTS ***"
3640 PRINT
3650 PRINT
3660 GO SUB 1390
3670 PRINT
3680 GO SUB 1490
3690 GO TO 3080
3710 REM p using I.D.
3720 GO SUB 1100
3730 GO SUB 670
3740 GO SUB 810
3750 GO SUB 1200
3760 LET OD=ID+2*t
3770 IF t>=0.1*OD THEN GO TO 3800
3780 IF t<0.1*OD THEN GO TO 4000
3800 GO SUB 1570
3810 CLS
3820 PRINT
3830 PRINT "INPUT DATA"
3840 PRINT
3850 GO SUB 1430
3860 PRINT
3870 GO SUB 1470
3880 PRINT
3890 GO SUB 1450
3900 PRINT
3910 PRINT
3920 PRINT "*** RESULTS ***"
3930 PRINT
3940 GO TO 1390
3950 PRINT
3960 GO SUB 1510
3970 PRINT
3980 GO TO 3080
4000 CLS
4010 PRINT
4020 PRINT "INPUT DATA"
4030 PRINT
4040 GO SUB 1430
4050 PRINT
4060 GO SUB 1470
4070 PRINT
4080 GO SUB 1450
4090 PRINT
4100 PRINT
4110 PRINT "*** RESULTS ***"
4120 PRINT
4130 GO SUB 1390
4140 PRINT
4150 GO SUB 1490
4160 PRINT
4170 GO TO 3080
4180 REM s using O.D.
4190 GO SUB 600
4200 GO SUB 670
4210 GO SUB 740
4220 IF t>=0.1*OD THEN GO TO 4240
4230 IF t<0.1*OD THEN GO TO 4460
4240 REM t>=0.1*OD
4270 LET k7=(1.3*OD*OD+.4*ID*ID)/(OD*OD-ID*ID)
4280 LET s=p*k7
4290 CLS
4300 PRINT
4310 PRINT "INPUT DATA"
4315 PRINT
4320 GO SUB 1390
4330 PRINT
4340 GO SUB 1470
4350 PRINT
4360 GO SUB 1410
4370 PRINT
4380 PRINT
4390 PRINT "*** RESULTS ***"
4400 PRINT
4410 PRINT "Actual stress (psi) = ";s
4420 PRINT
4430 GO SUB 1510
4440 GO TO 3080
4460 REM t<0.1*OD
4470 GO SUB 950
4480 CLS
4490 PRINT
4500 PRINT "INPUT DATA"
4510 PRINT
4520 GO SUB 1390
4530 PRINT
4540 GO SUB 1470
4550 PRINT
4560 GO SUB 1410
4570 PRINT
4580 PRINT
4590 PRINT "*** RESULTS ***"
4600 PRINT
4610 PRINT "Actual stress (psi) = ";s
4620 PRINT
4630 GO SUB 1490
4640 PRINT
4650 GO SUB 1430
4660 PRINT
4670 GO TO 3080
4690 REM s using I.D.
4700 GO SUB 600
4710 GO SUB 670
4720 GO SUB 1100
4730 LET OD=ID+(2*t)
4740 IF t>=0.1*OD THEN GO TO 4760
4750 IF t<0.1*OD THEN GO SUB 1220
4752 GO TO 4980
4760 LET z1=(1.3*OD*OD+.4*(ID*ID))/(OD*OD-ID*ID)
4770 LET s=p*z1
4780 CLS
4785 PRINT
4790 PRINT "INPUT DATA"
4800 PRINT
4810 GO SUB 1390
4820 PRINT
4830 GO SUB 1470
4840 PRINT
```

```
4850 GO SUB 1430
4860 PRINT
4870 PRINT
4880 PRINT "*** RESULTS ***"
4890 PRINT
4900 PRINT "Actual stress (psi) = ";s
4910 PRINT
4920 GO SUB 1510
4930 PRINT
4940 GO SUB 1410
4950 PRINT
4960 GO TO 3080
4970 GO SUB 1220
4980 CLS
4990 PRINT
5000 PRINT "INPUT DATA"
```

```
5010 PRINT
5020 GO SUB 1390
5030 PRINT
5040 GO SUB 1470
5050 PRINT
5060 GO SUB 1430
5070 PRINT
5080 PRINT
5090 PRINT "*** RESULTS ***"
5100 PRINT
5110 PRINT "Actual stress (psi) = ";s
5120 PRINT
5130 GO SUB 1490
5140 PRINT
5150 PRINT "OD (in.)          = ";OD
5160 PRINT
5200 GO TO 3080
```

NEF T/S USERS GROUP APPLICATION FOR MEMBERSHIP

NAME _____
ADDRESS _____
CITY _____
OCCUPATION _____
COMPUTERS YOU USE _____
_____
MODEMS? _____
PRINTERS? _____
_____

PLEASE MAIL THIS FORM ALONG WITH $15.00 FOR
MEMBERSHIP AND NEWSLETTER TO :
NEF TS USERS GROUP
BILL FISCHER
419 PARKWOOD DRIVE E.
ORANGE PARK , FLA 32073

E SINC TIMES
ITOR
634 ORIOLE AVE
ACKSONVILLE, FLA 32216

THE SINC TIMES
NEWSLETTER EXCHANGE
2942 CHRISTHOPER RD.
JACKSONVILLE, FLA 32217

JACKSONVILLE FLA 322 PM
4 AUG
1988

To. C.A.T.U.Y.
1885-A Yorktown Ave
Great Lakes, IL
60088